



# Spectrum Management & Electromagnetic Environmental Effects (E3) “Business Process”

Chuck Tabor  
Fleet Electronic Warfare Center  
Spectrum Management Lead  
01 Mar 2010

5/6/2010

1

"Distribution A: Approved for public release" on it.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>01 MAR 2010</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2010 to 00-00-2010</b>	
4. TITLE AND SUBTITLE <b>Spectrum Management &amp; Electromagnetic Environmental Effects (E3) 'Business Process'</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Navy Cyber Forces,Fleet Electronic Warfare Center,Norfolk,VA,23511</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>31st Annual USN?USMC Spectrum Management Conference, 1-5 Mar 2010, San Diego, CA</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>36</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



## OUTLINE



☐ SM & E3 POLICY STATUTORY/DoD/DON

☐ OPNAVINST 2400.20F

☐ SM / E3 NAVY TASK (NTA'S)

- NTA 5.5.6 Perform SM (Ashore/Afloat/Joint)
- NTA 5.5.6.1 Perform EMI
- NTA 5.5.6.2 Perform EMC

☐ SM & E3 “Business Processes”

- Define
- Need to consolidate/integrate processes
- Way Ahead

☐ Way-Ahead



# **Statutory/Regulatory**

## **Presidential Directives**



**Title 47USC§305 - Communications Act of 1934, as amended**

**Public Law 102-538 - Telecommunications Act of 1992**

**Title 47USC§901, §902, §903, §904**

**National Telecommunications and Information Administration (NTIA)**

**Includes EO12046 to delegate Presidential Authority to DOC/NTIA**

**OMB Circular A-11 (12 July 1999)**

- **DOD Acquisition Regulations (5000 series)**
- **DODI 4650.1 (9 January 2009) – Policy and Procedures for Management and Use of the Electromagnetic Spectrum**
- **Service Unique Regulations and Directives**
  - **SECNAVINST 2400.1 (6 February 2006) - Electromagnetic Spectrum Policy and Management for the Department of the Navy**
  - **OPNAVINST 2400.20F (19 July 2007) - Electromagnetic Environmental Effects (E3) and Spectrum Supportability Policy and Procedures**
  - **NTP-6 (E) – Navy and Marine Corps Spectrum Management Operations Manual, waiting for signature**
  - **MCO 2400.2A (7 Oct 2009) - Marine Corps Management and Use of the Electromagnetic Spectrum**



# SPECTRUM WARFARE

## Roles & Responsibilities



**SM, has it changed? You Betcha.....**

**1980's Microfiche - Static Monthly products from ECAC**

**1989 Frequency assignments on paper / filed in each FAO's drawer!!**

**2000- VAX / Database, ASPECTS, JSIMS, EMCAP, SCS DMR,**

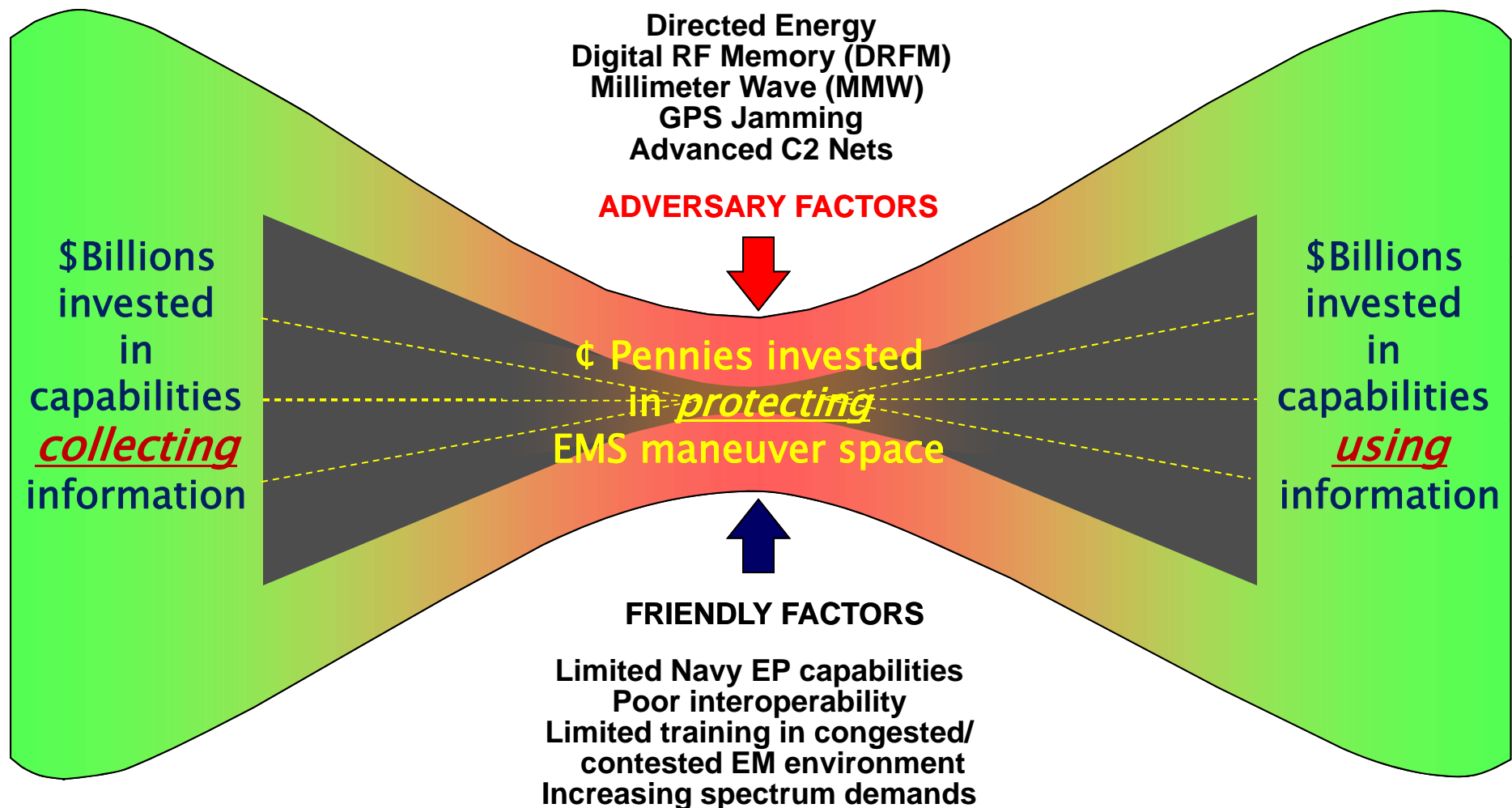
**2010**

- **Spectrum Management (SM) SXXI / AESOP / SPEED /**
- **Spectrum Certification (EICid), HNNSWD,**
- **Electromagnetic Environmental Effects (E3) / (STAN)**
- **Electronic Warfare (EW)**
- **Spectrum Operations - JACS/CJSMPT/AESOP/SPEED/JAX**

## What is driving Change?

# Electromagnetic Spectrum Operations

*“Superhighway of Assumed Availability”*



5/6/2010

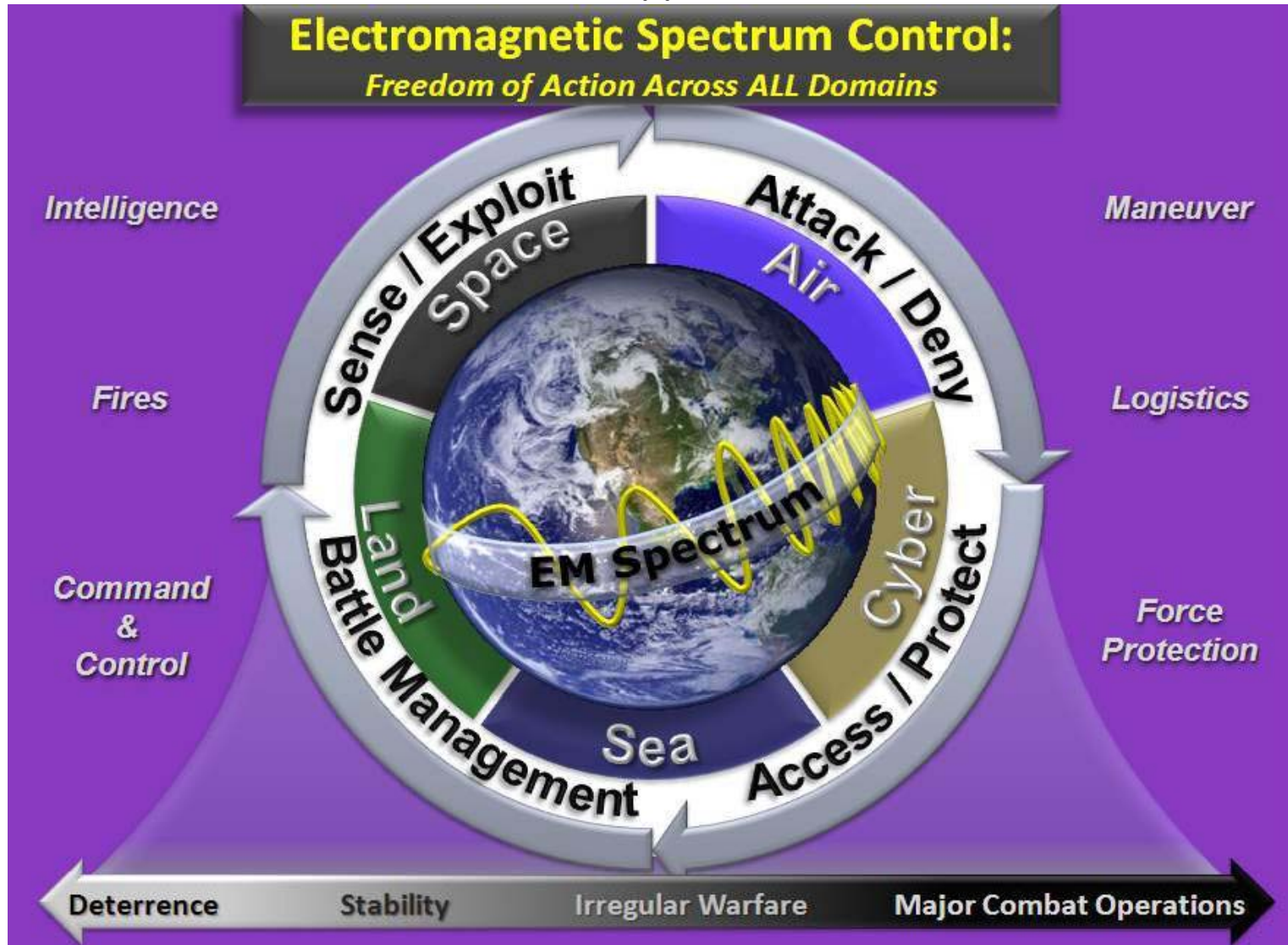
**Viewing traditional EW in broader EMS Warfare concepts**



# “EM Warfare” OV-1

EW Initial Capabilities Document ,30 Oct 09 / Approved by JROCM 177-09

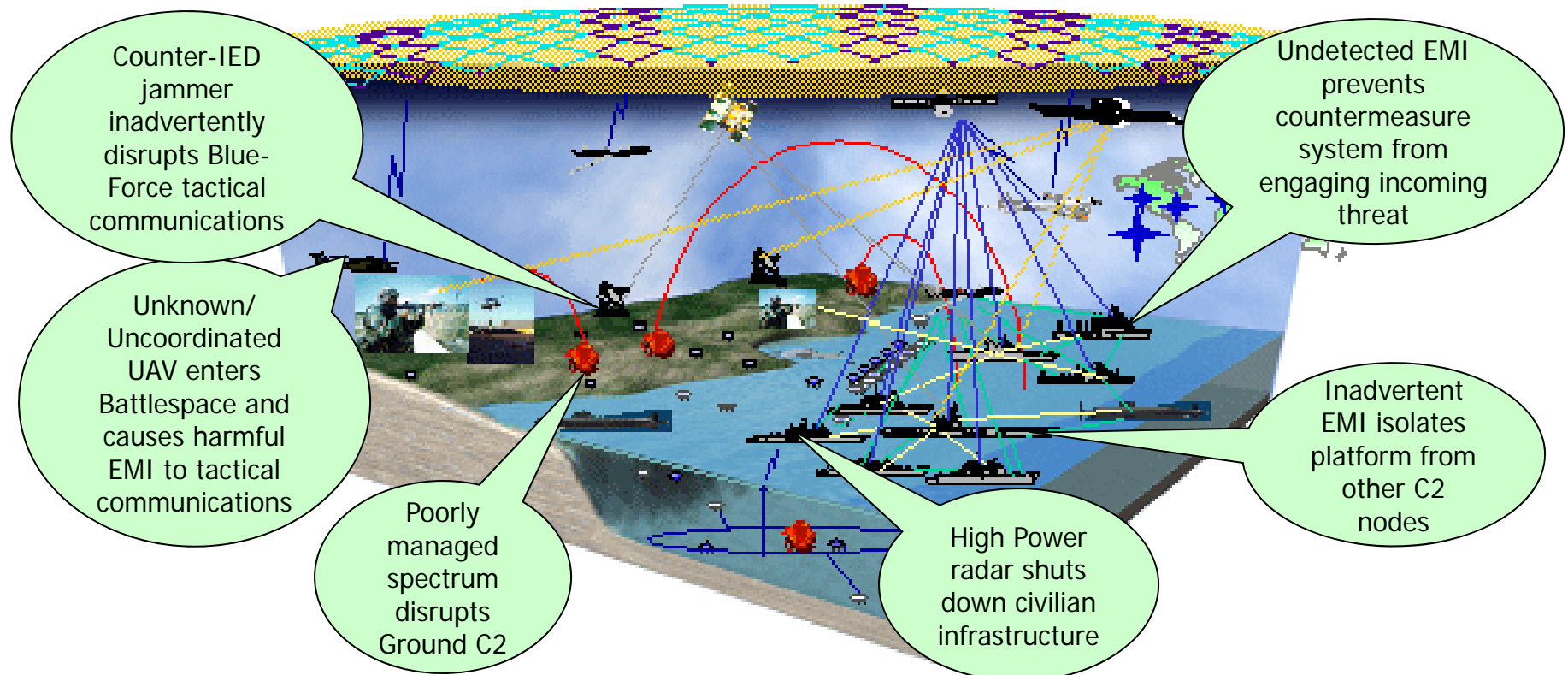
2010



5/6/2010

# Big Picture – Why we do it

**Spectrum Management** ensures bandwidth, interoperability, and availability of Information Operations



**Electromagnetic Environmental Effects (E<sup>3</sup>)** impacts information

availability and integrity and must be appropriately managed 7

5/6/2011





# Continuous Improvement Plan (CIP) SM – E3 – EMI - EW



**FLEET TRAINING CONTINUUM (FTC)  
COMUSFLTFORCOM/COMPACFLT INST 3501.3B  
Navy Tactical (NTA) for SM / EW / E3**

**Background: As part of NAVCYBER (FEWC) oversight as the TYCOM for (SM), (E3) and (EW) NTA, METL development. N45/SPAWAT/NMSC and a cast of support personnel were successful in creating new EMI and E3 NTAs and measures. This effort is just one of the many moving parts surrounding EMS, EW, E3, EMI, Spectrum Warfare initiatives. The (CIP) process will continue as long as demand for new and improved technology, systems, capabilities increase.**

**NAVCYBERFOR FEWC/N4/7) has led the effort to identify Navy Tactical (NTA) and associated measures to ensure Afloat / Ashore and Joint MF&T are captured in the Defense Readiness Reporting System-Navy (DRRS\_N) system.**

**Technology and changing EME has a significant impact on the SS business processes and how they support “Spectrum Operations”**

**“CHANGE IS INEVITABLE, EMBRACE IT”!**



# FLEET TRAINING CONTINUUM (FTC)

COMUSFLTFORCOM/COMPACFLT INST 3501.3B

## SM / EMI



Due to the inextricable link between SM and EMI, NAVCYBERFOR N4/N7 as the lead for NTA development pursued the following actions.

- NAVCYBER (N4/7) recommended, and NWDC approved the revision of NTA 5.5.6, and the approval of two “new” EMI & E3 Navy Tasks (NTA 5.5.6.1) and (NTA 5.5.6.2.)
  - **NTA 5.5.6 – PERFORM SPECTRUM MANAGEMENT (Revised 2009)**
  - **NTA 5.5.6.1 CONTROL ELECTROMAGNETICINTERFERENCE (EMI) Approved 2009**
  - **NTA 5.5.6.2 ASSESS ELECTROMAGNETIC ENVIRONMENTAL EFFECTS E3 Approved 2009**
- In JAN 2010 CNO N6F13/NAVCYBERFOR issued a message DTG 202301Z JAN10 which implemented the SM and two new E3 NTA's to TYCOM CRA's for implementation and assignment within the DRRS\_N reporting system.

**NTA 5.5.6.2 ASSESS ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) WAS DEVELOPED FOR SYSTEMS COMMANDS AND WILL BE ASSIGNED SEPERATELY.**

**NOTE\* SYSCOM's do not currently fall under the DRRS\_N reporting system.**

5/6/2010



# SM & E3

## Navy Tactical (NTA's)

N4/N7 Message 202301Z JAN 10



Originator: COMNAVNETWARCOM NORFOLK VA(UC) **(NOW NAVCYBERFOR)**

DTG: 202301Z Jan 10

To: CNIC WASHINGTON DC(UC), COMUNDERSEASURV DAM NECK VA(UC), COMNAVMETOCCOM STENNIS SPACE CENTER MS(UC), COMSC WASHINGTON DC(UC), COMNECC LITTLE CREEK VA(UC), COMNAVSPECWARCOM CORONADO CA(MC), COMSECONDFLT, COMTHIRDFLT, COMSEVENTHFLT

Cc: CNO WASHINGTON DC(UC), COMNAVNETWARCOM NORFOLK VA(UC), COMUSFLTFORCOM NORFOLK VA, COMFOURTHFLT(UC), COMFIFTHFLT(UC), COMSIXTHFLT(UC), COMNAVSURFOR SAN DIEGO CA(UC), COMSUBFOR NORFOLK VA(UC), COMNAVAIRFOR SAN DIEGO CA, COMSTRKFORTRALANT(UC), COMSTRKFORTRAPAC(UC), COMNAVWARDEVCOM NEWPORT RI(UC)

MSGID/GENADMIN/NAVNETWARCOM/-/JAN//

**SUBJ/SPECTRUM MANAGEMENT AND ELECTROMAGNETIC ENVIRONMENTAL EFFECTS(E3) NAVY MISSION ESSENTIAL TASK (NMET) GUIDANCE FOR ASHORE UNITS//**

REF/A/DOC/CUSFFC CPF 3501.3B/20JUL09//

REF/B/DOC/OPNAVINST 3500.38(SERIES)//

REF/C/DOC/CUSFFC 3501.4/08DEC08//

REF/D/DOC/OPNAVINST 2400.20F/17JUL07//

REF/E/DOC/NTP 6(SERIES)//

REF/F/DOC/CUSFFC INST 4790.3(SERIES)//

NARR/REF A IS THE FLEET TRAINING CONTINUUM (FTC). REF B IS UNIVERSAL NAVY TACTICAL LIST. REF C IS DEFENSE READINESS **REPORTING SYSTEM NAVY (DRRS-N) REPORTING GUIDANCE**. REF D IS THE **ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) AND SPECTRUM SUPPORTABILITY POLICY AND PROCEDURES**. REF E IS A NAVAL TELECOMMUNICATIONS PROCEDURE FOR **SPECTRUM MANAGEMENT**. REF F IS THE JOINT FLEET MAINTENANCE MANUAL.

POC/HINKLEY, BRIAN/CAPT/NETWARCOM FEWC/TEL:(757) 417-7922 /EMAIL: BRIAN.HINKLEY@NAVY.MIL//

POC/TABOR, CHUCK/CIV/NETWARCOM N3 EW-SD/TEL: (757) 417-6739 EXT 4 /EMAIL: CHUCK.TABOR@NAVY.MIL//

POC/MCHARGUE, TINA/CIV/NETWARCOM N401 CRA/TEL: (757) 417-6714 EXT 4/EMAIL: TINA.MCHARGUE@NAVY.MIL//

5/6/2010

10



# SM & E3 Navy Tactical (NTA)



RMKS/1. THIS IS A COORDINATED CNO N6F1/NETWARCOM N34 MESSAGE. PER THE AUTHORITY IN REF A, NETWARCOM RECOMMENDED AND NWDC APPROVED THE REVISION OF NAVY TACTICAL **(NTA) 5.5.6 (PERFORMSPECTRUM MANAGEMENT)** AND DEVELOPMENT OF **NTA 5.5.6.1 (CONTROL ELECTROMAGNETIC INTERFERENCE (EMI))** AND **NTA 5.5.6.2 (ASSESS ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3))**. REFS BAND C PROVIDE GUIDANCE FOR IMPLEMENTING **THESE MISSION ESSENTIAL TASKS**. REFS D AND E PROVIDE **SM AND E3 GUIDANCE** ACTION: AS PART OF CONTINUING MISSION ANALYSIS AND **NMETL REFINEMENT, ALL COORDINATING REVIEW AUTHORITIES (CRA) WILL ASSIGN NTA'S AND MEASUREMENTS TO RESPONSIBLE ORGANIZATIONS (RESPORGS) SPECIFIED BELOW**. NNWC HAS ESTABLISHED A RESPORG WITHIN THE NAVY TRAINING INFORMATION SYSTEM (NTIMS) TO FACILITATE THE SELECTION OF TASKS FROM A SINGLE AUTHORITATIVE REPOSITORY RELATED TO SPECTRUM MANAGEMENT NAMED Z NNWC DEV - SPECTRUM SUPPORTABILITY DEV GROUP.

A. **TASK: NTA 5.5.6 PERFORM SPECTRUM MANAGEMENT CRA ACTION:**

**NTA SHALL BE ASSIGNED TO ALL SHORE UNITS**. ENSURE THE FOLLOWING MEASUREMENTS ARE SELECTED FOR THIS MISSION ESSENTIAL TASK:

**XM04 A COMMAND INSTALLATION SPECTRUM MANAGER (ISM) IS DESIGNATED** IN WRITING IAW NTP 6(X) AND A COPY PROVIDED TO THE REGIONAL NMCSO.

XM05: DESIGNATED ISM HAS BEEN BRIEFED BY REGIONAL NMCSO ON ROLES AND RESPONSIBILITIES IAW NTP 6(X); ISM CHECKLIST.

M07: INSTALLATION SPECTRUM MANAGER (ISM) HAS DISSEMINATED NAVSUP POLICY WITHIN HIS/HER COMMAND DETAILING THE PROCUREMENT RESTRICTIONS OF SPECTRUM DEPENDENT EQUIPMENT (RADIO FREQUENCY AND/OR WIRELESS DEVICES).

**M08: THE ISM IS SERVING AS THE ELECTROMAGNETIC INTERFERENCE (EMI) COORDINATOR AND SUPPORTING THE REGIONAL NAVY AND MARINE CORPS SPECTRUM OFFICES (NMCSO)** TO IDENTIFY AND RESOLVE HARMFUL INTERFERENCE



# SM & E3 Navy Tactical (NTA)



M09: THE ISM IS MAINTAINING A HISTORICAL LOG OF ALL EMI INCIDENTS IAW NTP 6(X).

M10: OF ALL FREQUENCY ASSIGNMENTS, FOR BASES AND TENANT ACTIVITIES, WITHIN THEIR AOR THAT ARE BEING MAINTAINED BY THEIR ISM AND HAVE A VALID "SITE LICENSE".

M12: OF ALL FREQUENCY ASSIGNMENT 5-YEAR REVIEW ACTIONS SUBMITTED TO REGIONAL NMCSO WERE SUBMITTED 90 DAYS BEFORE ACTUAL REVIEW DATE OR EXPIRATION DATE.

**M13: ALL RF EQUIPMENT AND SYSTEM ARE IN COMPLIANCE WITH DON AND DOD SYSTEM CERTIFICATION POLICY.**

**M30: OF CURRENT EMI RESTRICTIONS** GUIDANCE MAINTAINED BY UNIT FOR INTENDED OPERATIONAL AREA.

XM45: OF ALL ISM SPECTRUM MANAGEMENT ACTIONS ARE COORDINATED WITH REGIONAL NMCSO OFFICE.

## **B. TASK: NTA 5.5.6.1 CONTROL ELECTROMAGNETIC INTERFERENCE (EMI)**

**CRA ACTION: NTA SHALL BE ASSIGNED TO ALL SHORE UNITS. ENSURE THE FOLLOWING MEASUREMENTS ARE SELECTED FOR THIS MISSION ESSENTIAL TASK:**

M01: OF ELECTROMAGNETIC INTERFERENCE (EMI) PROBLEMS REPORTED VERSUS THE NUMBER RESOLVED.

M03: OF CORRECTIVE ACTIONS FOR ELECTROMAGNETIC INTERFERENCE (EMI) CONTROL COMPLETED VERSUS THE NUMBER REQUIRED.

M04: OF ALL KNOWN ELECTROMAGNETIC INTERFERENCE (EMI) FIXES INSTALLED ONE YEAR AFTER SURVEY COMPLETION.

**M05: OF ALL RADIATION HAZARDS (RADHAZ), HAZARDS OF ELECTROMAGNETIC RADIATION TO PERSONNEL (HERP), HAZARDS OF ELECTROMAGNETIC RADIATION TO FUEL (HERF) CONTROL MEASURES INSTALLED ONE YEAR AFTER SURVEY COMPLETION.**

**XM08: WAS ELECTROMAGNETIC INTERFERENCE (EMI) IDENTIFIED AND REPORTED TO CHAIN OF COMMAND IN ACCORDANCE WITH CURRENT GUIDANCE.**

**XM09: IS THERE A CURRENT HAZARDS OF ELECTROMAGNETIC RADIATION TO PERSONNEL (HERP) / FUEL (HERF) SURVEY.**

**XM10: IS THERE A CURRENT HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO) SURVEY.**

**XM11: IS THERE A CURRENT ELECTROMAGNETIC INTERFERENCE (EMI) SITE SURVEY.**



# SM & EMI Navy Tactical (NTA)



## **NTA 5.5.6.2 ASSESS ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) WAS DEVELOPED FOR SYSTEMS COMMANDS AND WILL BE ASSIGNED SEPERATELY.**

4. IN SUPPORT OF THE NEW REQUIREMENTS LISTED ABOVE, SPECTRUM MANAGEMENT AND EMI CONTROL OCCUPATIONAL STANDARDS WILL BE INCORPORATED INTO FORMAL INFORMATION TECHNOLOGY (IT) CURRICULUM. THE NAVY JOB ANALYSIS (NJA) WORKING GROUP WILL UTILIZE THESE NEW/REVISED NAVY TACTICAL TASKS AND MEASURES FOR THIS EFFORT.

5. **NMET GUIDANCE FOR AFLOAT UNITS WILL BE PROVIDED SEPCOR.**

**6. DUE TO THE INEXTRICABLE LINK BETWEEN SM, E3, AND ELECTRONIC WARFARE (EW), WE WILL DISSEMINATE SEVERAL MESSAGES TO UPDATE SM, E3, AND EW NTA'S. ADDITIONAL NTA'S MAY BE ADDED TO ENSURE ALL REQUIREMENTS ARE DOCUMENTED AS WELL AS TO ENSURE SM, E3, AND EW NTA'S AND MEASURES ARE IMPLEMENTED AND STANDARDIZED THROUGHOUT THE NAVY.**

7. CONTACT MS. TINA MCHARGUE FOR NTIMS IMPORT QUESTIONS WHEN SELECTING AND EDITING YOUR COMMAND/UNIT NMETLS. FOR SM ISSUES OR QUESTIONS CONTACT MR. CHUCK TABOR.//

BT





# Navy Tactical (NTA) DRRS\_N / NTIMS What Now???



- NAVCYBERFOR Message 202301 JAN 10, assigns SM and EMI NTA's to:  
TYCOM's / CNIC for action to implement and assign to their Responsible Organizations (RESPORG) Quote:
- AS PART OF CONTINUING MISSION ANALYSIS AND NMETL REFINEMENT, ALL COORDINATING REVIEW AUTHORITIES (CRA) WILL ASSIGN NTA'S AND MEASUREMENTS TO RESPONSIBLE ORGANIZATIONS (RESPORGS) SPECIFIED BELOW.

NAVCYBER HAS ESTABLISHED A RESPORG WITHIN THE NAVY TRAINING INFORMATION SYSTEM (NTIMS) TO FACILITATE THE SELECTION OF TASKS FROM A SINGLE AUTHORITATIVE REPOSITORY RELATED TO SPECTRUM MANAGEMENT

- A. TASK: NTA 5.5.6 PERFORM SPECTRUM MANAGEMENT  
CRA ACTION: NTA SHALL BE ASSIGNED TO ALL SHORE UNITS
- B. TASK: NTA 5.5.6.1 CONTROL ELECTROMAGNETIC INTERFERENCE (EMI)  
CRA ACTION: NTA SHALL BE ASSIGNED TO ALL SHORE UNITS.
- C. TASK: NTA 5.5.6.2 ASSESS ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) WAS DEVELOPED FOR SYSTEMS COMMANDS AND WILL BE ASSIGNED SEPERATELY.



Navy Tactical (NTA)  
**NTA 5.5.6 – Perform Spectrum  
Management**  
Measures (ASHORE)



**ENSURE THE FOLLOWING MEASUREMENTS ARE SELECTED FOR THIS MISSION  
ESSENTIAL TASK:**

**XM04 A COMMAND INSTALLATION SPECTRUM MANAGER (ISM) IS DESIGNATED IN  
WRITING IAW NTP 6(X) AND A COPY PROVIDED TO THE REGIONAL NMCSO.**

**XM05: DESIGNATED ISM HAS BEEN BRIEFED BY REGIONAL NMCSO ON ROLES AND  
RESPONSIBILITIES IAW NTP 6(X); ISM CHECKLIST.**

**M07: INSTALLATION SPECTRUM MANAGER (ISM) HAS DISSEMINATED NAVSUP POLICY  
WITHIN HIS/HER COMMAND DETAILING THE PROCUREMENT RESTRICTIONS OF  
SPECTRUM DEPENDENT EQUIPMENT (RADIO FREQUENCY AND/OR WIRELESS  
DEVICES).**

**M08: THE ISM IS SERVING AS THE ELECTROMAGNETIC INTERFERENCE (EMI)  
COORDINATOR AND SUPPORTING THE REGIONAL NAVY AND MARINE CORPS  
SPECTRUM OFFICES (NMCSO) TO IDENTIFY AND RESOLVE HARMFUL INTERFERENCE**



## Navy Tactical (NTA) NTA 5.5.6.1 – Control EMI Measures (ASHORE)



**ENSURE THE FOLLOWING MEASUREMENTS ARE SELECTED FOR THIS MISSION  
ESSENTIAL TASK:**

- M01: OF ELECTROMAGNETIC INTERFERENCE (EMI) PROBLEMS REPORTED VERSUS THE NUMBER RESOLVED.**
- M03: OF CORRECTIVE ACTIONS FOR ELECTROMAGNETIC INTERFERENCE (EMI) CONTROL COMPLETED VERSUS THE NUMBER REQUIRED.**
- M04: OF ALL KNOWN ELECTROMAGNETIC INTERFERENCE (EMI) FIXES INSTALLED ONE YEAR AFTER SURVEY COMPLETION.**
- M05: OF ALL RADIATION HAZARDS (RADHAZ), HAZARDS OF ELECTROMAGNETIC RADIATION TO PERSONNEL (HERP), HAZARDS OF ELECTROMAGNETIC RADIATION TO FUEL (HERF) CONTROL MEASURES INSTALLED ONE YEAR AFTER SURVEY COMPLETION.**
- XM08: WAS ELECTROMAGNETIC INTERFERENCE (EMI) IDENTIFIED AND REPORTED TO CHAIN OF COMMAND IN ACCORDANCE WITH CURRENT GUIDANCE.**
- XM09: IS THERE A CURRENT HAZARDS OF ELECTROMAGNETIC RADIATION TO PERSONNEL (HERP) / FUEL (HERF) SURVEY.**
- XM10: IS THERE A CURRENT HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO) SURVEY.**
- XM11: IS THERE A CURRENT ELECTROMAGNETIC INTERFERENCE (EMI) SITE SURVEY.**



## SPECTRUM SUPPORTABILITY BUSINESS PROCESS



# So what is the problem?

We have established SM and EMI

- ✓ Policy & Guidance
- ✓ Approved NTA's / MEASURES

**BUT BUT**

We

- X **Have not** clearly defined SM/E3 AOR at Region/Base/Unit Levels
- X **Have not** realigned/consolidated the SM&EMI

**If you are performing either SM or EMI tasks (MEASURES)**  
**The data impacts both NTA's!**

**Regional/Base/Installation level R&R still "FUZZY"**



# So What is the problem?

## SM & EMI Business Process (Outdated)

### Spectrum Supportability ISM (SS) (OTHR)



- What tasks “measures” (SM / EMI) are directly linked?
- SM and EMI **Business Processes** need to be reviewed for realignment into a consolidated SM/EMI (ISM) Regional Spectrum Supportability office.

#### EX: SM Business Process:

ISM Duties NTA 5.5.6 - Frequency assignment responsibilities  
MOU's with tenant activities for frequency assignments  
SM support to ELMR Program Manager  
Ensure Channel Plan Compliance with DoD and National Plans  
Validate acquisition requirement for RF Devices/Equipment (EBUS)

\*\* **FRCB Checklist for SM validation of (Freq Assignments)**

#### EX: EMI Business Process: **NTA 5.5.61 (Who's Responsible) ???**

HERO/HERP/HERF Regional/Base/Tenant/User coordinator  
Support Regional/Base/Tenant E3/RADHAZ data repository  
Support SYSCOMs and Region/Base E3/RADHAZ Site Surveys  
Support EMI/EMC Interference resolution/mitigation issues  
EMC integration/Analysis (FRCB) process

\*\* **FRCB Checklist for E3 SHORE Installs (Site Survey)**

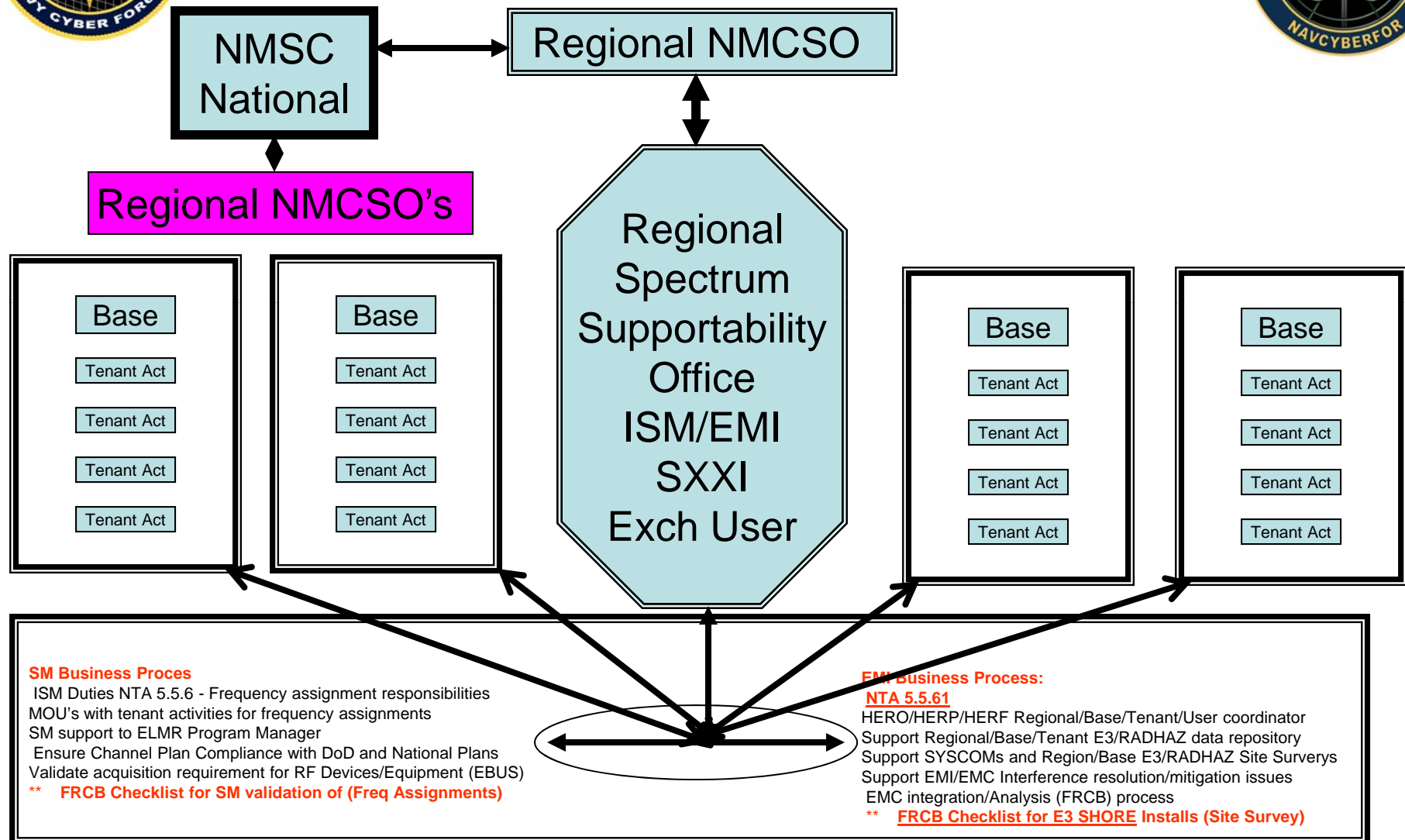
\*\*\*\*\* **The technical data and topographic data impacts both processes (SM-E3) \*\*\*\*\***

❖ **SM/EMI FUNCTIONS ARE INEXTRICABLY LINKED**



# Spectrum Supportability Office

## "Integrates" SM-EMI NTA Measures







# SM & E3 (SS) Business Process Way Ahead



- Ensure that SM&E3 “STAKEHOLDERS” understand and support integration “SS” business processes
- Establish a Regional “SS” to support base level ISM/E3 requirements
- Coordinate with SM and E3 (Ashore) Stakeholders to clarify SM and E3 responsibilities IAW OPNAVINST 2400.20F JUL 2007



# Contact Information



## Navy Cyber Forces / N45 (FEWC) Spectrum Office

- Chuck Tabor, Spectrum Lead (757) 417-6739 x4 DSN 537-6739 x4  
[chuck.tabor@navy.mil](mailto:chuck.tabor@navy.mil) [chuck.tabor@navy.smil.mil](mailto:chuck.tabor@navy.smil.mil)
- Deems Wiggs, Telcom. Specialist (757) 417-7924 x4 DSN 537-7924 x4  
[deems.wiggs@navy.mil](mailto:deems.wiggs@navy.mil) [deems.wiggs@navy.smil.mil](mailto:deems.wiggs@navy.smil.mil)

## Links

- **Electronic Warfare/Spectrum Dominance CAS site (SIPR)**  
<http://205.0.132.75/don/so/site.nsf/>
- **NKO Spectrum Management Community of Practice (NIPR)**  
<https://wwwa.nko.navy.mil/portal/home>  
>>Organizations & Communities>>Communities of Practice>>Spectrum Management
- **NNWC Spectrum Management SharePoint site (NIPR – CAC required)**  
<https://www.portal.navy.mil/netwarcom/N3/ewsd/spectrum/default.aspx>

# Questions

Thank you

# Back-Up



# OPNAVINST 2400.20F

## ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3) AND SPECTRUM SUPPORTABILITY POLICY AND PROCEDURES (Jul 2007)



1. Purpose. To establish Navy policy and procedures and assign responsibilities for Electromagnetic Environmental Effects (E3) and Spectrum Supportability (SS).
3. Scope and Applicability
  - a. This instruction establishes Navy policy and assigns responsibilities for achieving SS and ensuring reliable, safe, and mission capable operations of all electrical and Communications-Electronics (C-E) equipment, systems and subsystems, devices, ordnance, and fuels within their intended operational electromagnetic environment (EME), including effects on personnel. E3 considerations apply to all platforms, systems, subsystems, facilities, weapons, electric or electronic equipment, networks, sensors, fuels, and ordnance, (hereinafter referred to as equipment, systems and platforms) developed, procured, acquired, operated, and maintained by the Navy including Commercial Items (CI) and Non-Developmental Items (NDI).
  - c. This instruction applies to all United States (NAVY) commands, activities, installations and units, both active and reserve, involved in the research, development, procurement, or operation of any electronic/electrical equipment, systems and platforms, and any C-E equipment which transmit and/or receive electromagnetic radiation.



# OPNAVINST 2400.20F

## Policy (Jul 2007)

### SM & E3 Policy



#### 4. Policy

- Spectrum Supportability No spectrum-dependent system(s) being developed shall proceed into the System Development and Demonstration Phase without a spectrum supportability determination unless specific authorization to proceed is granted by the Milestone Decision Authority (MDA) in accordance with references (a) through (c).
- Spectrum Certification **DD 1494 Applications** for Equipment Frequency Allocation shall be initiated and **submitted by developers or the procuring organizations** as soon as RF bands of operation are identified; shall be updated for each stage of the system life cycle; and **shall be updated again whenever changes are planned or made in system electromagnetic radiating characteristics** or operational use, including deployment locations.
- Frequency Assignments NAVY and MARINE CORPS activities use radio frequencies within the United States and Possessions (US&P) per assignments made by the National Telecommunications and Information Administration (NTIA) in accordance with reference (b). **NETWARCOM obtains frequency assignments for NAVY and MARINE CORPS operations in the United States and Possessions (US&P) from the NTIA in accordance with references (a) and (b).**
- d. Electromagnetic Environmental Effects(E3)  
Achievement of electromagnetic compatibility in the operational Electromagnetic Environment (EME) is the paramount objective of the Navy's E3 Program. The primary goals of the Navy E3 Program are to enhance battleforce performance by controlling E3 effects to warfighting capability caused by the interaction of the EME with NAVY equipment, systems, platforms, and personnel. This is accomplished with the prevention, correction and mitigation of mission degrading E3 performance effects.
- e. Electronic Attack  
When performing Electronic Attack in the United States and Canada for Tests, Training, and Exercises implement procedures in accordance with reference (aa).

5/6/2010





# OPNAVINST 2400.20F

## Responsibilities (Jul 2007)



### (SM FOCUS)

## 6. Responsibilities

- a. **Deputy Chief of Naval Operations** (Communication Networks), (CNO (N6)), shall be the Navy SS/E3/EMP Program Director.
- e. The Head, Training and Education Requirements Branch **(CNO (N127))** shall:
  - (1) Ensure that a policy is established to direct that all necessary operational **personnel be trained in spectrum management**, i.e. NEC IT-2301/2302s, etc, and assist **CNO (N6F13)** and **NETWARCOM** with the development, maintenance and oversight of a cadre of Navy spectrum management career professionals.
- g. Naval Network Warfare Command (NETWARCOM) shall:**
  - (1) **Establish a Frequency Management Office (FMO) to act as the Navy and Marine Corps center of excellence for radio frequency and spectrum management.**
  - (2) **Publish and maintain** a detailed manual of procedures for obtaining spectrum certification and frequency assignments.
  - (3) **Consolidate ashore spectrum management functions** into regional support centers in order to provide more effective spectrum management support to Naval afloat and ashore activities and commands
  - (4) Support the CNO (N6 and N6F13) and CMC (HQMC C4) in the **formation and implementation of policy and procedures, and overall management and use of the electromagnetic spectrum for the Navy**
    - (c) **Procure, coordinate, register, assign**, and protect **radio frequencies** for test and operational use of C-E equipment and systems employed by Navy and Marine Corps commands and activities.
    - (d) **Maintain frequency assignment records**, and periodically review all frequency assignments in accordance with references (b) and (f).
    - (e) **Provide SS/E3 guidance for all research, development, acquisition, and modification of equipment, systems and platforms.**
    - (f) Advise the Fleet on operational measures and tactics that should be used to exploit the EME and to control EMI degradation of warfighting capability.



# SM FOCUS

## “NMSC Mission”

Established Echelon IV Sep 08



- Per OPNAVINST 2400.20F, NNWC has designated the NMSC as the Navy and Marine Corps Center of Excellence for radio frequency and spectrum management.
- Support the Operational Fleet Electronic Warfare Center (FEWC)/SD
- Exercise control of the electromagnetic spectrum for the Department of the Navy (DON) to support Ashore and Fleet/Force operations.
- Review, coordinate, and process applications for equipment/system frequency allocations. CNO responsible for approval.
- Coordinate and validate regional SM requirements and submit to national level
- Procure, protect, coordinate, allocate, and assign radio frequencies required within the DON at the National Level.



# Navy Marine Corps Spectrum Offices Worldwide (Sep 2008)

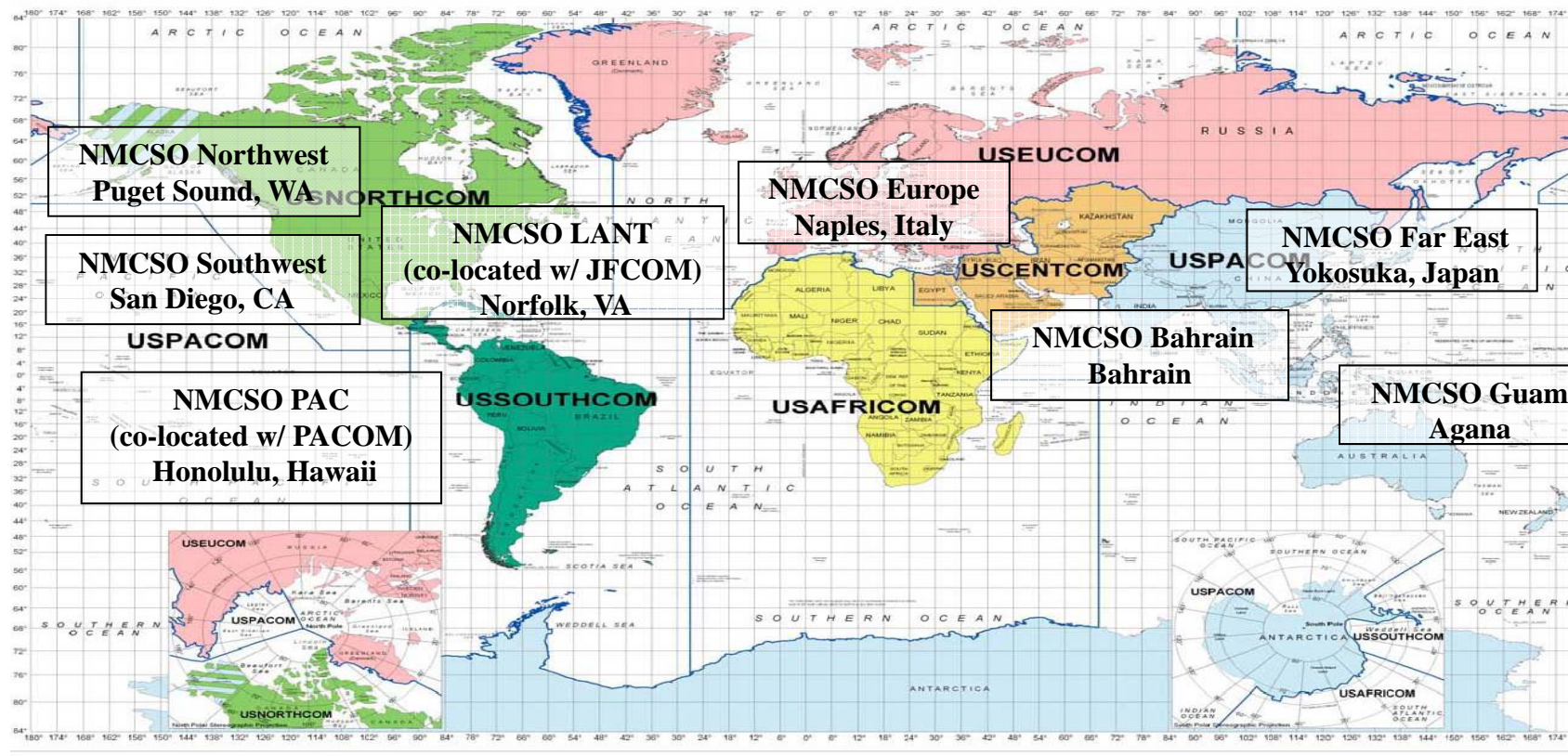


HE WORLD 1:60,000,000

THE WORLD WITH COMMANDERS' AREAS OF RESPONSIBILITY

EDITION 8 NGA  
BASED ON  
UNIFIED COMMAND PLAN  
17 DECEMBER 2008

SERIES



RIES 1107  
ITION 8 NGA



PREPARED AND PUBLISHED BY THE  
NATIONAL GEOSPATIAL INTELLIGENCE AGENCY  
OF LOUIS, MD  
Map information as of 2008

COPYRIGHT 2008 BY THE UNITED STATES GOVERNMENT  
NO COPYRIGHT CLAIMED UNDER TITLE 17 U.S.C.

MAP EFFECTIVE 17 DECEMBER 2008

State of Alaska assigned to USNORTHCOM's  
Area of Responsibility. Forces based in Alaska  
remain assigned to USNORTHCOM.

USERS SHOULD REFER CORRECTIONS, ADDITIONAL COMMENTS TO THE NSA ENTERPRISE SERVICE DESK, 1-800-455-0699; COMMERCIAL, 301-227-9811; DSN 287-9811.  
UNCLASSIFIED EMAIL: ENTERPRISESERVICE@NSA.MIL; SIPRNET: EDCEN@NSA.MIL  
OR WRITE TO: DIRECTOR, NATIONAL GEOSPATIAL INTELLIGENCE AGENCY, ATTN: ESC, MAIL STOP D-240, 4500 SANGAMORE ROAD, BETHESDA, MD 20816-5003.

1:60,000,000  
MILLER CYLINDRICAL PROJECTION

The 1950 Israeli proclamation that  
Jerusalem be the national capital is  
not recognized by the United States.

\* West Bank and Gaza Strip - "Israel-occupied with current  
status subject to the Israel - Palestinian Interim Agreement -  
permanent status to be determined through further negotiation."

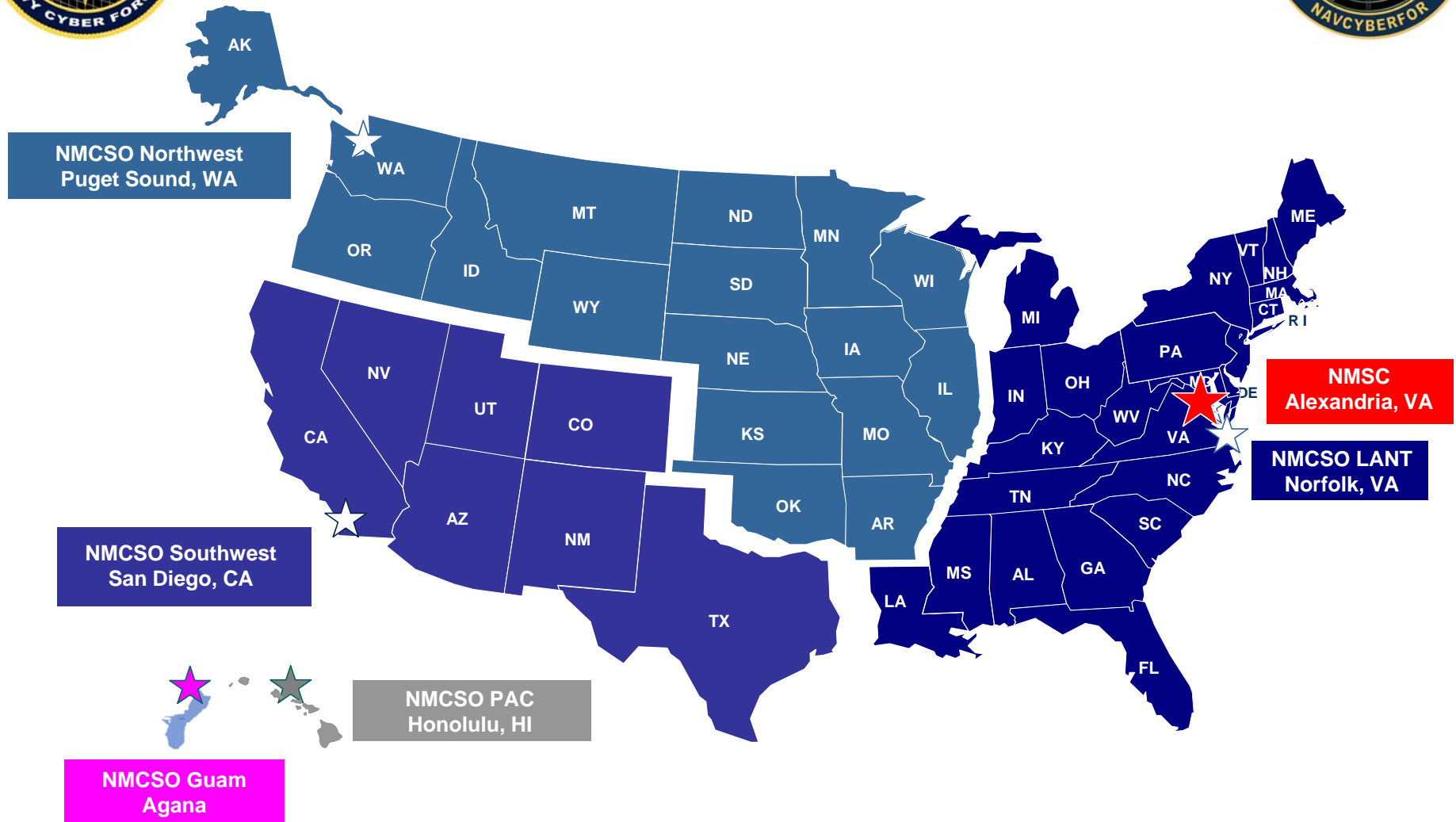
THE REPRESENTATION OF BOUNDARIES  
IS NOT NECESSARILY AUTHITATIVE.

5/6/2010

28



# NMSC Areas of Operation within the United States and Possessions



5/6/2010





# OPNAVINST 2400.20F

## Responsibilities Cont'd

E3 95% - SM 5%

PEOs - SYSCOMs



## 6. Responsibilities

**h. Program Executive Officers (PEOs), Direct Reporting Program Managers (DRPMs) and Program Managers (PMs) shall ensure:**

- (1) Ensure DD 1494s are submitted for all RF spectrum-dependent** systems including CI and NDI.
- (2) Budget for SS and E3 control to ensure that these requirements are incorporated into all programs as early as possible.
- (5) Define SS and E3 requirements for equipment, systems,** and platforms by utilizing this instruction, and references (g) through (i) and (v) through (y).

**i. Commanders of SYSCOMs shall establish and maintain an engineering capability for preventing, detecting, measuring, analyzing, reporting, and correcting EMI deficiencies and addressing spectrum supportability issues.**

**(5) Each SYSCOM commander shall designate and resource a trained spectrum manager as the SYSCOM Spectrum Manager to serve as a central point of contact for all experimental and developmental frequency assignments and requirements across cognizant PEOs and PMs.**

**j. COMNAVSEASYSKOM, in addition to those responsibilities assigned in paragraph 7i, shall:**

**(8) Act as Shipboard and Shore SS/E3 technical authority to ensure that shipboard and shore SS/E3 problems are investigated and resolved. Maintain the Navy's central data repository of all ship, submarine, and Strike Force SS/E3 problems and resolutions.**

**k. COMNAVAIRSYSKOM, in addition to those responsibilities assigned in paragraph 7i, shall:**



# OPNAVINST 2400.20F

## CNIC - INSTALLATIONS – ACTIVITIES

### SM – E3 (Business Process)



## 6. Responsibilities

I. Fleet Commanders, Commanders of NAVY installations and activities and all subordinate commands shall promote spectrum awareness and E3 in the Fleet by:

(3) Ensuring that equipment, systems, and platform maintenance is performed under published EMI control procedures

(5) Ensuring that radio frequencies used within their areas of responsibility are properly coordinated and authorized and that frequency assignments are kept current in accordance with reference (b).

(6) Ensuring that spectrum certifications and frequency assignments are obtained before buying C-E equipment

(7) Ensuring that provisions for use of specific radio frequencies by military or nonmilitary tenant activities on their installations are specifically addressed in a host-tenant agreement.

Such agreements include specific authority for the commander of the installation to require the tenant activity to cease or modify operation on a specific frequency or to change frequencies, should the need arise.

(8) Designating an installation spectrum manager (ISM) or frequency manager to serve as a central point of contact for all frequency use.

(9) Ensuring that the necessary EMC studies are conducted prior to approval for all requests for installation of commercial mobile service provider equipment on shore installations in accordance with reference (j).





# Spectrum Supportability Business Process Way Ahead



# SM & E3 Business Process



What should the “LEAD” of  
a Regional/Installation  
Spectrum Supportability Office  
DO?

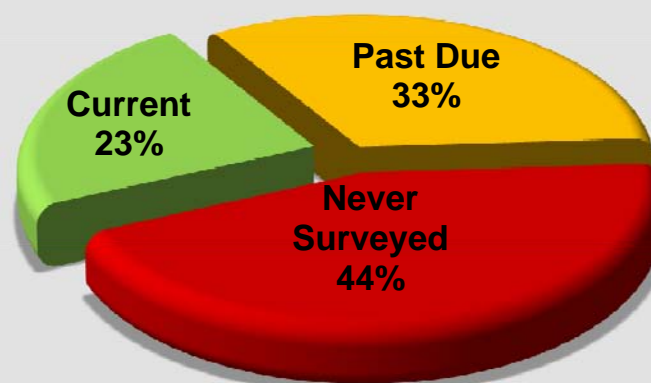
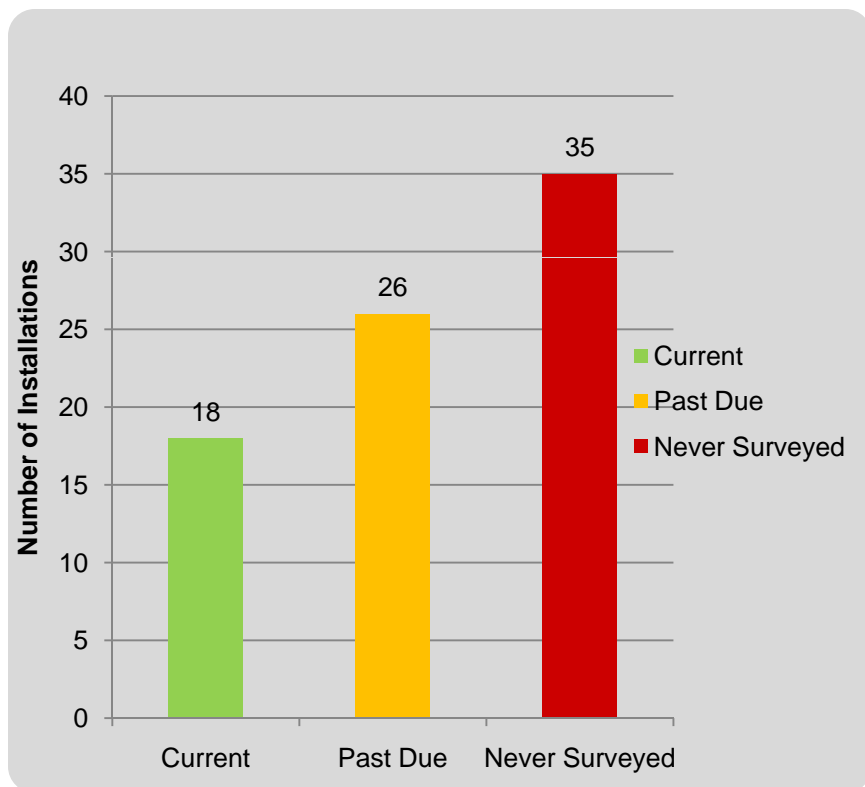
**CNR NE/MIDLANT SM/E3 POC KNOWS!!!**

- Show CNR MID ML 17 – Antenna ID Slides
- Show CNR MID ML 17 - Equip Spec Slides
- Show CNR MID ML 17 – Spectrum Licenses
- EBUS PROCESS
- FRCB Process
- LOCAL SM Chop on RF procurements
- Channel Plan Transition NE 100%
  - Rest of Navy Regions lagging behind/Non-Compliant
- When you do site Surveys/Emitter Surveys/Five Year Reviews
  - These are SM and E3 duties that directly impact/update SM/E3 requirements actions.

LCREEK SM POC received tasker from SPAWAR to update E3(HERO)  
 SM POC did not have a clue about SM/E3 usage for base

# CNR RADHAZ Status

## RADHAZ Survey's 77 % Non-Compliance



\* Based on CNIC Real Property Inventory Realignment

## E3 Requirements - Everybody's Business

N	Current
Y	Past Due
Y	Never Surveyed

# CNIC Post BRAC Navy Shore (79) Installations By Region

UIC	COMMAND	SURVEY REQUIRED	CERTIFICATION DATE	RESURVEY DATE
N09697	CNR Southeast (22)			
N00207	NAS Jacksonville	Y	10/17/2004	10/17/2009
N60201	NAVSTA Mayport	Y	02/07/2004	02/07/2009
N42237	SUBASE Kings Bay	N	08/14/2008	08/14/2013
N69214	NAVWPNSTA Charleston	Y	07/01/2004	07/01/2009
N00213	NAS Key West	N	04/18/2006	04/18/2011
N62604	CBC Gulfport	Y		
N60514	NAVSTA Guantanamo Bay	Y	10/23/2004	10/23/2009
N61008	NSA Panama City	N	07/28/2005	07/28/2010
N61006	NSA Athens	Y		
N00196	NAS Atlanta	Y	10/25/2004	10/25/2009
N63043	NAS Meridian	Y	07/19/2004	07/19/2009
N61007	NSA Orlando	Y		
N68890	NAVSTA Pascagoula	Y		
N00204	NAS Pensacola	Y	06/30/2003	06/30/2008
N60508	NAS Whiting Field	N	08/30/2008	08/30/2013
N68891	NAVSTA Ingleside	Y	06/03/1998	06/03/2003
N00216	NAS Corpus Christi	N	04/09/2009	04/09/2014
N60241	NAS Kingsville	Y	11/29/1996	11/21/2001
N83447	NAS/JRB Fort Worth	Y	05/04/1999	05/04/2004
N00206	NAS/JRB New Orleans	Y	03/17/2004	03/17/2009
N00205	NSA New Orleans	Y		
N40003	NA Puerto Rico	Y		
N00171	CNR NDW (5)			
N68469	NSA Washington	Y		
N61150	NSA North Potomac	Y		
N61151	NSA South Potomac	Y		
N0428A	NSA Patuxent River	N	04/19/2006	04/19/2011
N61152	NSA Annapolis	Y		
N61463	CNR MidAtlantic (16)			
N57095	NSA Norfolk	Y		
N32443	NSS Norfolk Naval Shipyard*	Y		
N62688	NAVSTA Norfolk	Y	04/13/2003	04/13/2008
N60191	NAS Oceana	Y	04/01/2002	04/01/2007
N69212	WPNSUPPFAC Yorktown	Y		
N61414	NAB Little Creek	Y		
N32414	NSA Mechanicsburg	Y		
N00158	NAS/JRB Willow Grove	N	06/23/2009	06/23/2014
N31188	NSGA Sugar Grove	Y		
N60087	NAS Brunswick	Y	04/01/1999	04/01/2004
N69213	NAVWPNSTA Earle	Y	06/09/1995	06/09/2000
N00129	SUBASE New London	Y	04/19/2001	04/19/2006
N32446	NSY BOS Portsmouth	Y		
N32411	NAVSTA Newport	Y		
N48558	NAVSTA Lakehurst	Y	02/04/2004	02/04/2009
N68317	NSU Saratoga Springs	Y		

UIC	COMMAND	SURVEY REQUIRED	CERTIFICATION DATE	RESURVEY DATE
N61040	CNR Midwest (3)			
N00128	NAVSTA Great Lakes	Y		
N61018	NSA Crane	N	06/26/2009	06/26/2014
N00639	Mid South	Y		
N68742	CNR Northwest (4)			
N68436	Naval Base Kitsap	Y	09/08/1988	09/08/2008
N00620	NAS Whidbey Island	Y	01/14/2000	01/14/2005
N68967	NAVSTA Everett	Y	06/07/1999	06/07/2004
N32013	NAVMAG Indian Island	Y		
N00242	CNR Southwest (10)			
N63406	SUBASE San Diego	Y		
N00245	NAVSTA San Diego	Y	07/14/1994	07/14/1999
N69232	NAVBASE Ventura County	Y		
N60042	NAF El Centro	Y	08/05/1997	08/05/2007
N63042	NAS Lemoore	Y		
N60495	NAS Fallon	Y	08/02/1999	08/01/2004
N61065	NAVWPNSTA Seal Beach	Y		
N00246	NAS North Island	Y		
N47609	NAWS China Lake	N	07/11/2005	07/11/2010
N61014	NSA Monterey	Y		
N61075	CNR Korea (1)			
N32778	CFA Chinhae	N	02/10/2009	02/10/2014
N61076	CNR Japan (7)			
N61029	CFA Okinawa	N	10/14/2008	10/14/2013
N61028	CFA Yokosuka	N	06/12/2008	06/12/2013
N61030	CFA Sasebo	N	09/22/2008	09/22/2013
N61031	NAF Atsugi	N	01/08/2008	01/08/2013
N61032	NAF Misawa	N	08/04/2008	08/04/2013
N61078	NSF Diego Garcia	N	07/08/2008	07/08/2013
N68047	NRCC Singapore	Y		
N61128	CNR Marianas (Guam) (1)			
N61755	NAVBASE Guam (CNF Marianas SA)	Y		
N61449	CNR Hawaii (2)			
N62813	NAVSTA Pearl Harbor	Y	12/01/2001	12/01/2006
N0534				
A	PMRF Barking Sands	Y	11/30/2001	11/30/2006
N3049				
B	CNR Europe (7)			
N66691	NSA Souda Bay	N	09/10/2009	09/10/2014
N49422	JMF St. Mawgans	Y		
N62585	NAVACTS UK	Y		
N62588	NSA Naples	Y		
N62995	NAS Sigonella	Y	06/15/2000	06/15/2005
N62863	NAVSTA Rota	N	10/07/2005	10/07/2010
N32960	NSA La Maddalena	Y		
N61108	CNR SW Asia (1)			
N63005	NAVSUPPACT Bahrain	Y		